

REMARKS

This RCE is responsive to the Final Office Action dated October 10, 2002, in which the Examiner rejects all the pending claims 1-10 as being obvious over Gill (U.S. Patent No. 6,129,209) in view of Lederman, et al. (U.S. Patent No. 6,424,507) and Tokunaga, et al. (U.S. Patent No. 6,452,382) under 35 U.S.C. §103(a). Applicants have further amended independent claim 1 and cancelled claim 2, and respectfully traverse the rejections of the Examiner based on the amendment and the explanations as below.

Claim 1 is amended to include the feature in claim 2 that all said non-adjacent ferromagnetic layers are CoFe layers, which is believed patentably distinguishable and non-obvious over the cited patents. In particular, Applicants do not agree with the assertion of the Examiner in the final Office Action that Gill implies a teaching to use CoFe for all the three ferromagnetic layers 750, 754 and 758. Gill does not suggest that the layer 750 may also be formed of CoFe even when he is suggesting that the other two layers 754 and 758 may be formed of CoFe instead of NiFe (see col. 7, lines 19-33). This clearly teaches that the layer 750 should not be formed of CoFe, which is teaching away from the present invention.

The present invention teaches to use CoFe instead of Co in all the ferromagnetic layers in the AAF because an anisotropy can be induced (page 3, lines 12-14), and Gill does not address this problem at all. Furthermore, this feature can not be found in the other two cited patents either, since neither of them discloses a device having AAF with more than three ferromagnetic layers. Therefore, the applicants believe that amended claim 1, with the above emphasized distinguishing feature, is not obvious over the Gill, Lederman, Tokunaga, or their combinations, and is thus patentable. At least for the same reason, claims 3-10 are also patentable since each of them includes all the limitations in the

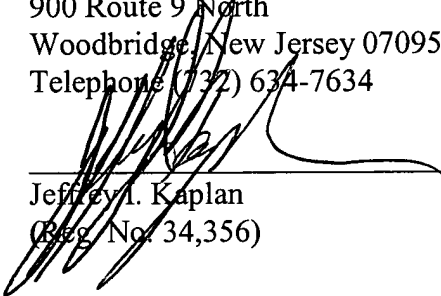
amended claim 1.

Applicants therefore respectfully request reconsideration in view of the above remarks and amendments. The Examiner is authorized to deduct additional fees believed due from our Deposit Account No. 11-0223.

Respectfully submitted,

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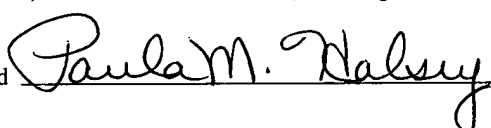
Dated: December 30, 2002



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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal service as first class mail, in a postage prepaid envelope, addressed to Box RCE, Commissioner for Patents, Washington, D.C. 20231 on December 30, 2002.

Dated December 30, 2002 Signed  Print Name Paula M. Halsey



MARKED-UP VERSION OF AMENDED CLAIM 1

1. (Twice Amended) A magneto-resistive device comprising [a substrate which carries] a free and a pinned ferromagnetic layer separated by a non-magnetic spacer layer therebetween for providing a magnetoresistive effect, said pinned layer comprising an artificial antiferromagnet layer system (AAF), and an exchange biasing layer, the exchange biasing layer being adjacent to and magnetically influencing the AAF layer system wherein the AAF layer system has an odd number of non-adjacent ferromagnetic layers greater than or equal to three, and [said exchange biasing layer is made of an IrMn type material] all said non-adjacent ferromagnetic layers are CoFe layers.

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